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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/780,853	Applicant(s) TZENG ET AL.	
	Examiner JOSHUA JOO	Art Unit 2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Detailed Action

This Office action is in response to Applicant's communication filed on February 23, 2010.

Claims 1-4, 6-19 are pending for examination.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 23, 2010 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 6-19 have been considered but are moot in view of the new ground(s) of rejection. New ground(s) of rejection are necessitated by Applicant's amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 7-8, 11-12, 14, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, US Publication No. 2003/0169734 (Lu hereinafter), in view of Gullicksen et al. US Patent No. 6,751,189 (Gullicksen hereinafter) and Mor et al. US Publication No. 2002/0018481 (Mor hereinafter).

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As per claim 1, Lu teaches substantially the invention as claimed including a method of handling datagrams in a network device coupled to other network devices, said method comprising:

receiving an incoming datagram at a port of the network device (Paragraphs 0070, 0074.

Incoming packet.);

determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram and a lookup of an address resolution lookup (ARL) table (Paragraph 0074.

Lookup destination address information to obtain destination port.);

performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraphs 0070, 0072.

Determine that there is no corresponding entry for source address in the forwarding database.);

writing an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

determining whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066. Forwarding databases have the same number of addresses. Paragraphs 0067; 0070. Determine corresponding address in neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.);

when it is determined that the other network devices have not learned the source address, sending, by the network device, a learning message with the source address to the other network devices (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches); and

Lu does not specifically teach of re-sending, by the network device, the learning message from the network device to the other network devices until the learning message is returned to the network device from one of the other network devices.

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Gullicksen teaches of updating topology for nodes, wherein a network device resends learning message from the network device to other network devices (col. 8, lines 15-20; col. 9, lines 4-15.

Message not received back. Retransmit message.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to re-send, by the network device, the learning message from the network device to the other network devices. The motivation for the suggested combination is that Gullicksen's teachings would improve Lu's teachings by allowing dynamic updating of connection and topology information and determining problems within the network.

Mor teaches of re-sending, by a network device, a message from the network device to the other network devices until the message is returned to the network device from one of the other network devices (Paragraph 0069).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to resend the learning message as taught by the suggested system until the message is returned to the network device from one of the other network devices. The motivation for the suggested combination is that Mor's teachings would improve the suggested system by provide additional opportunities for nodes to receive message.

As per claim 8, Lu teaches substantially the invention as claimed including a network device coupled to other network devices for handling datagrams comprising:

a plurality of ports for receiving an incoming datagram (Paragraph 0063. Eight-port switch. Paragraphs 0070, 0074. Incoming packet.);

one or more datagram processing devices;

a computer readable storage medium coupled with the one or more datagram processing devices, the computer readable storage medium having instructions stored thereon, wherein the instructions, when

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executed by the one or datagram processing devices, provide for implementing (Paragraph 0062.

Switch.):

an address resolution lookup (ARL) table (Paragraph 0065. Forwarding database.);

means for determining an egress port for the incoming datagram based on a destination address contained in the incoming datagram (Paragraph 0074. Lookup destination address information to obtain destination port.);

lookup means for performing a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraph 0070. Determine that there is no corresponding entry for source address in the forwarding database.);

writing means for writing an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

determining means for determining whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066. Forwarding databases have the same number of addresses. Paragraphs 0067; 0070. Determine corresponding address in neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.); and

relaying means for relaying a learning message with the source address to the other network devices when it is determined that the other network devices have not learned the source address (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches.).

Lu does not specifically teach wherein the relaying means repeatedly relays the learning message from the network device to the other network devices until the learning message is returned to the network devices from one of the other network devices.

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Gullicksen teaches of updating topology for nodes, wherein a network device resends learning message from the network device to other network devices (col. 8, lines 15-20; col. 9, lines 4-15.

Message not received back. Retransmit message.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to re-send, by the network device, the learning message from the network device to the other network devices. The motivation for the suggested combination is that Gullicksen's teachings would improve Lu's teachings by allowing dynamic updating of connection and topology information and determining problems within the network.

Mor teaches of repeatedly relaying, by a network device, a message from the network device to the other network devices until the message is returned to the network device from one of the other network devices (Paragraph 0069).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to repeatedly relay the learning message as taught by the suggested system until the message is returned to the network device from one of the other network devices. The motivation for the suggested combination is that Mor's teachings would improve the suggested system by provide additional opportunities for nodes to receive message.

As per claim 14, Lu teaches substantially the invention as claimed including a network device coupled to other network devices for handling datagrams comprising:

a plurality of ports configured to receive an incoming datagram (Paragraph 0063. Eight-port switch. Paragraphs 0070, 0074. Incoming packet.);

a computer readable storage medium coupled with the one or more datagram processing devices, the computer readable storage medium having instructions stored thereon, wherein the instructions, when

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executed by the one or datagram processing devices, provide for implementing (Paragraph 0062.

Switch):

an address resolution lookup (ARL) table (Paragraph 0065. Forwarding database.);

an egress port determiner configured to determine an egress port for the incoming datagram based on a destination address contained in the incoming datagram (Paragraph 0074. Lookup destination address information to obtain destination port.);

an ARL table reader configured to perform a lookup of the ARL table based on a source address contained in the incoming datagram to determine whether the source address has been learned previously (Paragraph 0070. Determine that there is no corresponding entry for source address in the forwarding database.);

an ARL table writer configured to write an entry into the ARL table when the source address has not been learned previously (Paragraphs 0067; 0070. Source address learning.);

a global address determiner configured to determine whether the other network devices have learned the source address when the source address has been learned previously (Paragraph 0066.

Forwarding databases have the same number of addresses. Paragraphs 0067; 0070. Determine corresponding address in neighboring switches including whether the address has expired. Paragraph 0080. Determine that switch L2 has been updated with same address.); and

a learning message forwarder configured to relay a learning message with the source address to the other network devices when it is determined that the other network devices have not learned the source address (Paragraphs 0067; 0070; 0072. Send refresh packet for the source address to neighboring switches.).

Lu does not specifically teach the forwarder configured to repeatedly relay the learning message from the network device to the other network devices until the learning message is returned to the network device to the network device from one of the other from one of the other network devices.

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Gullicksen teaches of updating topology for nodes, wherein a network device resends learning message from the network device to other network devices (col. 8, lines 15-20; col. 9, lines 4-15.

Message not received back. Retransmit message.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to re-send, by the network device, the learning message from the network device to the other network devices. The motivation for the suggested combination is that Gullicksen's teachings would improve Lu's teachings by allowing dynamic updating of connection and topology information and determining problems within the network.

Mor teaches of repeatedly relaying, by a network device, a message from the network device to the other network devices until the message is returned to the network device from one of the other network devices (Paragraph 0069).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to repeatedly relay the learning message as taught by the suggested system until the message is returned to the network device from one of the other network devices. The motivation for the suggested combination is that Mor's teachings would improve the suggested system by provide additional opportunities for nodes to receive message.

As per claim 4, Lu teaches the method of claim 1 wherein the network device and the other network devices are connected through a connection and continuing to relay the learning message comprises continuing to relay the learning message through the connection. Lu does not specifically teach that the connection is a ringed connection and relaying is through the ringed connection.

Gullicksen teaches of relaying a message through a ring connection (fig. 13; col. 3, lines 47-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a

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learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve the suggested system by enabling learning in different network topologies and utilizing a network that provides protection for transmission of data.

As per claim 7, Lu, Gullicksen, and Mor teach the method as recited in claim 1. Lu further teaches wherein receiving an incoming datagram comprises receiving an incoming data packet (Paragraph 0074. Incoming packet.).

As per claim 11, Lu teaches the network device, wherein the network device and the other network devices are connected through a connection and the relaying means comprises ring relaying means for relaying the learning message through the connection. Lu does not specifically teach that the connection is a ringed connection and relaying is through the ringed connection.

Gullicksen teaches of relaying a message through a ring connection (fig. 13; col. 3, lines 47-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve the suggested system by enabling learning in different network topologies and utilizing a network that provides protection for transmission of data.

As per claim 12, Lu, Gullicksen, and Mor teach the network device of claim 8. Lu further teaches wherein the network device is connected to the other network devices through one of a stacking port of the network device and an expansion port of the network device (Paragraph 0062. Stacked switches. Paragraph 0063. Connected by ports.).

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As per claim 17, Lu teaches the network device, wherein the network device and the other network devices are connected through a connection and relaying means comprises ring relaying means for relaying a learning message through the connection. Lu does not specifically teach that the learning message forwarder comprises a ring forwarder configured to relay the message through the ringed connection.

Gullicksen teaches of relaying a message through a ring connection (fig. 13; col. 3, lines 47-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the switches to be connected through a ringed connection and relay a learning message through the ring connection. The motivation for the suggested combination is that Gullicksen's teachings would improve the suggested system by enabling learning in different network topologies and utilizing a network that provides protection for transmission of data.

As per claim 18, Lu, Gullicksen, and Mor teach the network device as recited in claim 14. Lu further teaches wherein the network device is connected to the other network devices through one of a stacking port the network device and an expansion port of the network device (Paragraph 0062. Stacked switches. Paragraph 0063. Connected by ports.).

Claims 2, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Gullicksen, Mor, and Kerstein, US Patent No. 6,111,874 (Kerstein hereinafter).

As per claim 2, Lu does not specifically teach the method of claim 1, wherein the method further comprises updating a hit bit in the ARL table when the source address has been learned previously.

Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested combination is that Kerstein's teachings would improve the suggested system by using the bit to implement an aging algorithm (col. 7, lines 38-39).

As per claim 9, Lu does not specifically teach the network device of claim 8, wherein the instructions, when executed by the one or more datagram processing devices, further provide for implementing updating means for updating a hit bit in the ARL table when the source address has been learned previously.

Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested combination is that Kerstein's teachings would improve the suggested system by using the bit to implement an aging algorithm (col. 7, lines 38-39).

As per claim 15, Lu does not specifically teach the network device of claim 14, wherein the instructions, when executed by the one or more datagram processing devices, further provide for implementing an updater for updating a hit bit in the ARL table when the source address has been learned previously.

Kerstein teaches of updating a hit bit when a source address has been learned previously (col. 7, lines 35-39. Set hit bit when IRC finds source address.).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Lu to comprise a hit bit that is updated when a source address has been learned previously as taught by Kerstein. The motivation for the suggested combination is that Kerstein's teachings would improve the suggested system by using the bit to implement an aging algorithm (col. 7, lines 38-39).

Claims 3, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, in view of Gullicksen, Mor, and Sampath et al. US Publication No. 2002/0037006 (Sampath hereinafter).

As per claim 3, Lu does not specifically teach the method of in claim 1, wherein determining whether the other network devices have learned the source address comprises examining a learned all devices tag for the source address in the ARL table.

Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for the suggested combination is that Sampath's teachings would improve the suggested system by enabling verification of whether an address is learned and thus determination as to whether switches have current information. Furthermore, Sampath's teachings would provide high performance switching in a communications network (Paragraph 0003).

As per claim 10, Lu does not specifically teach the network device of claim 8, wherein the determining means comprises examining means for examining a learned all devices tag for the source address in the ARL table.

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Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for the suggested combination is that Sampath's teachings would improve the suggested system by enabling verification of whether an address is learned and thus determination as to whether switches have current information. Furthermore, Sampath's teachings would provide high performance switching in a communications network (Paragraph 0003).

As per claim 16, Lu does not specifically teach the network device of claim 14, wherein the global address determiner comprises an examiner configured to examine a learned all devices tag for the source address in the ARL table.

Sampath teaches of determining whether other network devices have learned the source address comprises examining a learned all devices tag for the source address (Paragraph 0007; Claim 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the ARL table as taught by Sampath to comprise a learned all devices tag and to examine a learned all devices tag for the source address as taught by Sampath. The motivation for the suggested combination is that Sampath's teachings would improve the suggested system by enabling verification of whether an address is learned and thus a determination as to whether switches have current information. Furthermore, Sampath's teachings would provide high performance switching in a communications network (Paragraph 0003).

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Claims 6, 13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Gullicksen, Mor, and Kotzur et al. US Patent No. 6,094,434 (Kotzur hereinafter).

As per claim 6, Lu teaches the method of claim 4, wherein determining an egress port comprises flooding with the incoming datagram (Paragraph 0074. Broadcast the packet if the switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's teachings would improve the suggested system by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

As per claim 13, Lu teaches the network device of claim 8, wherein the means for determining an egress port comprises a flooding means for flooding with the incoming datagram when the lookup of the ARL table does not find a match with the destination address (Paragraph 0074. Broadcast the packet if the switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's

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teachings would improve the suggested system by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

As per claim 19, Lu teaches the network device of claim 14, wherein the egress port determiner comprises a port flooder configured to flood the incoming datagram when the lookup of the ARL table does not find a match with the destination address (Paragraph 0074. Broadcast the packet if the switch cannot obtain the destination port.). Lu does not explicitly teach of flooding to all ports when the lookup of the ARL table does not find a match with the destination address.

Kotzur teaches of flooding all ports when a lookup of the ARL table does not find a match with a destination address (col. 63, lines 2-13. If address not found, broadcast to all ports.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to flood all ports when a lookup of the ARL table does not find a match with a destination address as taught by Kotzur. The motivation for the suggested combination is that Kotzur's teachings would improve the suggested system by ensuring that the packet is transmitted to an appropriate destination device (col. 63, lines 9-10).

Conclusion

Examiner has cited particular sections of the reference(s) that are applied to the claims. While the sections are cited for convenience and are representative of the teachings of the prior art, other sections of the reference(s) may be relevant and applicable to the claims. It is respectfully requested that Applicant fully consider the reference(s) in its entirety when responding to the Office action.

A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Friday 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew T. Caldwell can be reached on 571 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Joshua Joo/
Examiner, Art Unit 2445